

Abstract of the disclosure

A micro integrated cardiac pacemaker comprising a control unit for outputting a control signal, heart stimulating means for stimulating a heart tissue in response to the control signal, cardiograph information extracting means for extracting cardiograph information and outputting it to the control unit, and a power supply unit for supplying drive power. The control unit outputs a control signal according to cardiograph information. The power supply unit is a biological fuel cell that takes out electrons by oxidation of a biological fuel. The biological fuel cell is characterized in that it comprises an anode and a cathode, an oxidase of a biological fuel and a mediator are immobilized on the cathode, the blood and/or the body fluid are used as an electrolytic solution, and a biological fuel and oxygen in the blood and/or the fluid are used. The biological fuel cell is attached to the end of a catheter and implanted into the heart, and the catheter is withdrawn. It is unnecessary to incise the breast.